

MOUSE *Fkh^f* cDNA SEQUENCE

1 GCTGATCCCC CTCTAGCAGT CCACTTCACC AAGGTGAGCG AGTGTCCCTG
 51 CTCTCCCCCA CCAGACAAG CTCTGCTGGC GAAAGTGGCA GAGAGGTATT
 101 GAGGGTGGGT GTCAGGAGCC CACCACTACA GCTGGAAACA CCCAGCCACT
 151 CCAGCTCCCG GCAACTTCTC CTGACTCTGC CTTGAGACGA GACTTGGAAG
 201 ACAGTCACAT CTCAGCAGCT CCTCTGCCGT TATCCAGCCT GCCTCTGACA
 251 AGAACCCAAAT GCCCAACCCT AGGCCAGCCA AGCCTATGGC TCCTTCCTTG
 301 GCCCTTGGCC CATCCCCAGG AGTCTTGCCA AGCTGGAAGA TGACACCCAA
 351 GGGCTCAGAA CTTCTAGGGA CCAGGGGCTC TGGGGGACCC TTCCAAGGTC
 401 GGGACCTGCG AAGTGGGGCC CACACCTCTT CTTCTTGAA CCCCTGCCA
 451 CCATCCCAGC TGCAGCTGCC TACAGTGCCC CTAGTCATGG TGGCACCGTC
 501 TGGGGCCCGA CTAGGTCCCT CACCCACCT ACAGGCCCTT CTCCAGGACA
 551 GACCACACTT CATGCATCAG CTCTCCACTG TGGATGCCCA TGCCAGACC
 601 CCTGTGCTCC AAGTGCCTCC ACTGGACAAC CCAGCCATGA TCAGCCTCCC
 651 ACCACCTTCT GCTGCCACTG GGGTCTTCTC CCTCAAGGCC CGGCCTGGCC
 701 TGCCACCTGG GATCAATGTG GCCAGTCTGG AATGGGTGTC CAGGGAGCCA
 751 GCTCTACTCT GCACCTTCCC ACGCTCGGGT ACACCCAGGA AAGACAGCAA
 801 CCTTTTGGCT GCACCCCAAG GATCCTACCC ACTGCTGGCA AATGGAGTCT
 851 GCAAGTGGCC TGGTTGTGAG AAGGTCTTCG AGGAGCCAGA AGAGTTTCTC
 901 AAGCACTGCC AAGCAGATCA TCTCCTGGAT GAGAAAGGCA AGGCCCAGTG
 951 CCTCCTCCAG AGAGAAGTGG TGCAGTCTCT GGAGCAGCAG CTGGAGCTGG
 1001 AAAAGGAGAA GCTGGGAGCT ATGCAGGCCC ACCTGGCTGG GAAGATGGCG
 1051 CTGGCCAAGG CTCCATCTGT GGCCTCAATG GACAAGAGCT CTTGCTGCAT
 1101 CGTAGCCACC AGTACTCAGG GCAGTGTGCT CCCGGCCTGG TCTGCTCCTC
 1151 GGGAGGCTCC AGACGGCGGC CTGTTTGCA GTCGGAGGCA CCTCTGGGGA
 1201 AGCCATGGCA ATAGTTCCTT CCCAGAGTTC TTCCACAACA TGGACTACTT
 1251 CAAGTACCAC AATATGCGAC CCCCTTCAC CTATGCCACC CTTATCCGAT
 1301 GGGCCACTCT GGAAGCCCCG GAGAGGCAGA GGACACTCA TGAATCTAC
 1351 CATTGGTTTA CTCGCATGTT CGCCTACTTC AGAAACCACC CCGCCACCTG
 1401 GAAGAATGCC ATCCGCCACA ACCTGAGCCT GCACAAGTGC TTTGTGCGAG
 1451 TGGAGAGCGA GAAGGGAGCA GTGTGGACCG TAGATGAATT TGAGTTTCGC
 1501 AAGAAGAGGA GCCAACGCC CAACAAGTGC TCCAATCCCT GCCCTTGACC
 1551 TCAAAACCAA GAAAAGGTGG GCGGGGGAGG GGGCCAAAAC CATGAGACTG
 1601 AGGCTGTGGG GGCAAGGAGG CAAGTCTTAC GTGTACCTAT GGAAACCGGG
 1651 CGATGATGTG CCTGCTATCA GGGCCTCTGC TCCCTATCTA GCTGCCCTCC
 1701 TAGATCATAT CATCTGCCTT ACAGCTGAGA GGGGTGCCAA TCCCAGCCTA
 1751 GCCCCTAGTT CCAACCTAGC CCAAGATGA ACTTTCCAGT CAAAGAGCCC
 1801 TCACAACCAG CTATACATAT CTGCCTTGGC CACTGCCAAG CAGAAAGATG
 1851 ACAGACACCA TCCTAATATT TACTCAACCC AAACCCTAAA ACATGAAGAG
 1901 CCTGCCTTGG TACATTCGTG AACTTTCAAA GTTAGTCATG CAGTCACACA
 1951 TGACTGCAGT CCTACTGACT CACACCCCAA AGCACTCACC CACAACATCT
 2001 GGAACCACGG GCACTATCAC ACATAGGTGT ATATACAGAC CCTTACACAG
 2051 CAACAGCACT GGAACCTTCA CAATTACATC CCCCCAAACC ACACAGGCAT
 2101 AACTGATCAT ACGCAGCCTC AAGCAATGCC CAAAATACAA GTCAGACACA
 2151 GCTTGTGAGA

Figure 1

MOUSE Fkhst PROTEIN SEQUENCE

1 MPNPRPAKPM APSLALGPSP GVLPSWKTAP KGSELLGTRG SGGPFQGRDL
51 RSGAHTSSSL NPLPPSQLQL PTVPLVMVAP SGARLGPSPH LQALLQDRPH
101 FMHQLSTVDA HAQTPVLQVR PLDNPAMISL PPPSAATGVF SLKARPGGLPP
151 GINVASLEWV SREPALLCTF PRSGTPRKDS NLLAAPQGSY PLLANGVCKW
201 PGCEKVFEPP EEFLKHCQAD HLLDEKGKAQ CLLQREVVQS LEQQLELEKE
251 KLGAMQAHLA GKMAKAKAPS VASMDKSSCC IVATSTQGSV LPAWSAPREA
301 PDGGLFAVRR HLWGSHGNSS FPEFFHNMDY FKYHNMRPPF TYATLIRWAI
351 LEAPERQRTL NEIYHWFTRM FAYFRNHPAT WKNAIRHNLS LHKCFVRVES
401 EKGAVWTVDE FEFRRKRSQR PNKCSNPCE*

Figure 2

004207" 04E26560

HUMAN *FKH^f* cDNA Sequence

1 GCACACACTC ATCGAAAAA ATTTGGATTA TTAGAAGAGA GAGGTCTGCG
 51 GCTTCCACAC CGTACAGCGT GGTTTTCTT CTCGGTATAA AAGCAAAGTT
 101 GTTTTTGATA CGTGACAGTT TCCCACAAGC CAGGCTGATC CTTTTCTGTC
 151 AGTCCACTTC ACCAAGCCTG CCCTTGGACA AGGACCCGAT GCCCAACCCC
 201 AGGCCTGGCA AGCCCTCGGC CCCTTCCTTG GCCCTTGGCC CATCCCCAGG
 251 AGCCTCGCCC AGCTGGAGGG CTGCACCCAA AGCCTCAGAC CTGCTGGGGG
 301 CCCGGGGCCC AGGGGGAACC TTCCAGGGCC GAGATCTTCG AGGCGGGGCC
 351 CATGCCTCCT CTCTTCCTT GAACCCCATG CCACCATCGC AGCTGCAGCT
 401 GCCCACACTG CCCCTAGTCA TGGTGGCACC CTCCGGGGCA CGGCTGGGCC
 451 CCTTGCCCCA CTTACAGGCA CTCCTCCAGG ACAGGCCACA TTTCATGCAC
 501 CAGCTCTCAA CGGTGGATGC CCACGCCCCG ACCCCTGTGC TGCAGGTGCA
 551 CCCCCTGGAG AGCCAGCCA TGATCAGCCT CACACCACCC ACCACCGCCA
 601 CTGGGGTCTT CTCCCTCAAG GCCCGGCCTG GCCTCCACCC TGGGATCAAC
 651 GTGGCCAGCC TGAATGGGT GTCCAGGGAG CCGGCACTGC TGTGCACCTT
 701 CCCAAATCCC AGTGCACCCA GGAAGGACAG CACCCTTTCG GCTGTGCCCC
 751 AGAGCTCCTA CCCACTGCTG GCAAATGGTG TCTGCAAGTG GCCCGGATGT
 801 GAGAAGGTCT TCGAAGAGCC AGAGGACTTC CTCAAGCACT GCCAGGCGGA
 851 CCATCTTCTG SATGAGAAGG GCAGGGCACA ATGTCTCCTC CAGAGAGAGA
 901 TGGTACAGTC TCTGGAGCAG CAGCTGGTGC TGGAGAAGGA GAAGCTGAGT
 951 GCCATGCAGG CCCACCTGGC TGGGAAAATG GCACTGACCA AGGCTTCATC
 1001 TGTGGCATCA TCCGACAAGG GCTCCTGCTG CATCGTAGCT GCTGGCAGCC
 1051 AAGGCCCTGT CGTCCCAGCC TGGTCTGGCC CCCGGGAGGC CCTTGACAGC
 1101 CTGTTTGCTG TCCGGAGGCA CCTGTGGGGT AGCCATGGAA ACAGCACATT
 1151 CCCAGAGTTC CTCCACAACA TGGACTACTT CAAGTTCAC AACATGCGAC
 1201 CCCCTTTCAC CTACGCCACG CTCATCCGCT GGGCCATCCT GGAGGCTCCA
 1251 GAGAAGCAGC GGACACTCAA TGAGATCTAC CACTGGTTCA CACGCATGTT
 1301 TGCCTTCTTC AGAAACCATC CTGCCACCTG GAAGAACGCC ATCCGCCACA
 1351 ACCTGAGTCT GCACAAGTGC TTTGTGCGGG TGGAGAGCGA GAAGGGGGCT
 1401 GTGTGGACCG TGGATGAGCT GGAGTTCCGC AAGAAACGGA GCCAGAGGCC
 1451 CAGCAGGTGT TCCAACCTTA CACCTGGCCC CTGACCTCAA GATCAAGGAA
 1501 AGGAGGATGG ACGAACAGGG GCCAAACTGG TGGGAGGCAG AGGTGGTGGG
 1551 GGCAGGGATG ATAGGCCCTG GATGTGCCCA CAGGGACCAA GAAGTGAGGT
 1601 TTCCACTGTC TTGCCTGCCA GGGCCCCTGT TCCCCCGCTG GCAGCCACCC
 1651 CCTCCCCCAT CATATCCTTT GCCCCAAGGC TGCTCAGAGG GGCCCCGGTC
 1701 CTGGCCCCAG CCCCCACCTC CGCCCCAGAC ACACCCCCCA GTCGAGCCCT
 1751 GCAGCCAAAC AGAGCCTTCA CAACCAGCCA CACAGAGCCT GCCTCAGCTG
 1801 CTCGCACAGA TTAATTTCAG GCTGGAAAAG TCACACAGAC ACACAAAATG
 1851 TCACAATCCT GTCCCTCAC

Figure 3

09697340-102400

HUMAN FKHst PROTEIN SEQUENCE

1 MPNPRPGKPS APSLALGPSP GASPSWRAAP KASDLLGARG PGGTFQGRDL
51 RGGAHASSSS LNPMPPSQLQ LPTLPLVMVA PSGARLGPLP HLQALLQDRP
101 HFMHQLSTVD AHARTPVLQV HPLESPAMIS LTPPTTATGV FSLKARPGLP
151 PGINVASLEW VSREPALLCT FPNPSAPRKD STLSAVPQSS YPLLANGVCK
201 WPGCEKVFEE PEDFLKHCQA DHLLDEKGRA QCLLQREMVO SLEQQLVLEK
251 EKLSAMQAH L AGKMALTKAS SVASSDKGSC CIVAAGSQGP VVPAWSGPRE
301 APDSLFAVRR HLWGSHGNST FPEFLHNMDY FKFNMRPPF TYATLIRWAI
351 LEAPEKQRTL NEIYHWFTRM FAFFRNHPAT WKNAIRHNLS LHKCFVRVES
401 EKGAVWTVDE LEFRKRSQR PSRCSNPTPG P*

Figure 4

004207 04E26960

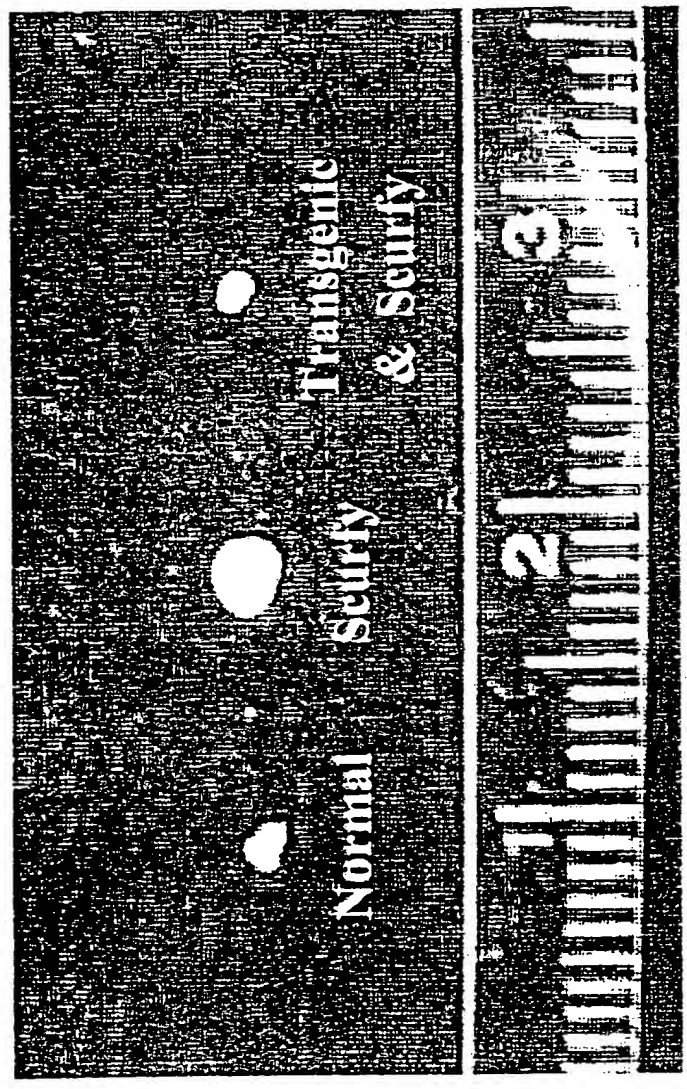
Vector for generation of FKH^{sf} Transgenic mice



Figure 5

004204" 04E26960

FKHsf Transgene corrects the defect in scurfy animals



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Figure 6

**FKHsf tg mice have reduce lymph node cells
compared to normal cells**

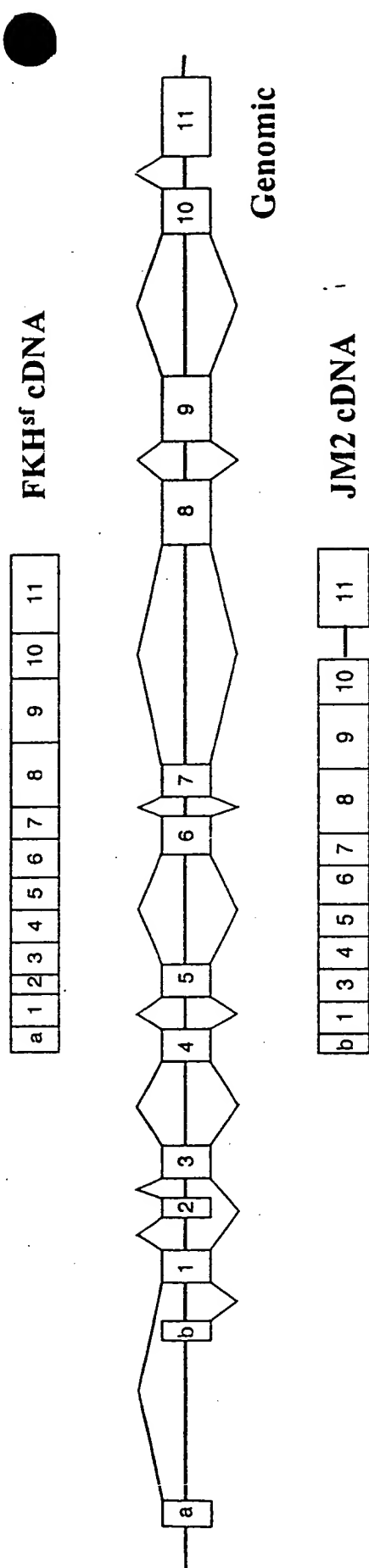
	Mouse genotype		
	Normal	Scurfy	Transgenic
Cell number			
Cells / LN	0.92	1.97	0.29
Cells / Thymus	0.76	0.54	0.76

Figure 7

FKHsf transgenic mice respond poorly to in vitro stimulation

	Mouse genotype	
	Normal	Scurfy Transgenic
Proliferation		
No stimulation	778	23488 596
Anti-CD3+Anti-CD28	22932	225981 9106

Figure 8



Comparison of FKH^{sf} and JM2 cDNAs. Exon/intron structure is shown (Genomic) as open rectangles (exons) joined by heavy horizontal lines (introns). Coding exons are numbered 1-11 as determined by sequence analysis of FKH^{sf} cDNA; non-coding 5' exons are labelled *a* and *b*. The FKH^{sf}-specific and JM2-specific splicing patterns and resulting cDNAs are indicated above and below the genomic structure, respectively.

Figure 9

<i>N-terminal</i>	<i>ZNF</i>	<i>Mid</i>	<i>Forkhead</i>	<u>Human FKHS^f</u>
				<u>Mouse FkHS^f</u>
83.4%	95.8%	82.8%	96.4%	

Human and mouse FKHS^f proteins are highly conserved.

Figure 10